

Appl. No. : 10/035,836  
Filed : December 21, 2001

### AMENDMENTS TO THE CLAIMS

1-69. (Canceled)

70. (Currently Amended) A bio-disc for detecting the binding of target-DNA to capture-DNA, comprising:

a substantially circular substrate adapted to transmit an interrogation beam from an optical drive;

a first reflective layer associated with said substrate, wherein said reflective layer is adapted to reflect said interrogation beam;

a plurality of target zones disposed in said reflective layer, wherein said target zones permit said interrogation beam to pass through said reflective layer; ~~and~~

~~an active layer associated with~~ vertically aligned with said reflective layer and said target zones, wherein said active layer comprises immobilized capture-DNA positioned to be contacted by said interrogation beam as it passes through said target zones; ~~and~~

a second reflective layer covering at least a portion of said active layer.

71. (Previously Presented) The bio-disc of Claim 70, further comprising a fluidic circuit associated with said active layer.

72. (Previously Presented) The bio-disc of Claim 71, wherein said fluidic circuit is formed from a membrane associated with said active layer.

73. (Previously Presented) The bio-disc of Claim 72, wherein said membrane is an adhesive membrane.

74. (Previously Presented) The bio-disc of Claim 71, wherein said fluidic circuit comprises a flow channel and a return channel.

75. (Previously Presented) The bio-disc of Claim 74, wherein said flow channel and said return channel form a "U" shape.

76. (Currently amended) The bio-disc of Claim 71, further comprising a cap portion ~~associated with~~ in vertical alignment with said ~~active~~ second reflective layer, wherein said cap portion provides an inlet port to said fluidic circuit.

77. (Canceled)

78. (Currently amended) A bio-disc for detecting the binding of target-DNA to capture-DNA, comprising:

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a substantially circular substrate configured to be read by an optical drive; and  
a plurality of flow channels associated with said substrate, wherein said flow channels are divided by a break-away retaining wall configured to break when said bio-disc rotates at a predetermined speed in said optical drive, further comprising DNA ~~chemically-bound~~ immobilized through a reactive group to an active layer associated with said flow channels; and  
a reflective layer covering at least a portion of said active layer.

79. (Canceled)

80. (Previously Presented) The bio-disc of Claim 78, wherein said flow channels are formed from a membrane.

81. (Currently amended) The bio-disc of Claim 78, further comprising a cap portion associated with in vertical alignment with said active reflective layer, wherein said cap comprises inlet ports configured to receive fluid into said flow channels.

82. (Currently amended) The bio-disc of Claim 78, further comprising:

a second reflective layer associated with said substrate, wherein said second reflective layer is adapted to reflect said interrogation beam from said optical disc;

a plurality of target zones disposed in said second reflective layer, wherein said target zones permit said interrogation beam to pass through said second reflective layer to said active layer.

83. (Previously presented) The bio-disc of Claim 78, wherein said DNA is covalently bound to said active layer.

84. (Currently amended) A bio-disc for detecting the binding of target-DNA to capture-DNA, comprising:

a substantially circular substrate configured to be read by an optical drive;

a plurality of flow channels associated with said substrate, wherein said flow channels are divided by a break-away retaining wall configured to break when said bio-disc rotates at a predetermined speed in said optical drive, further comprising DNA immobilized on an active layer associated with said flow channels;

a reflective layer associated with said substrate, wherein said reflective layer is adapted to reflect said interrogation beam from said optical disc; and

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a plurality of target zones disposed in said reflective layer, wherein said target zones permit said interrogation beam to pass through said reflective layer to said active layer; and

a second reflective layer covering at least a portion of said active layer.

85. (Previously presented) The bio-disc of Claim 84, wherein said flow channels are formed from a membrane.

86. (Previously presented) The bio-disc of Claim 84, further comprising a cap associated with said active layer, wherein said cap comprises inlet ports configured to receive fluid into said flow channels.